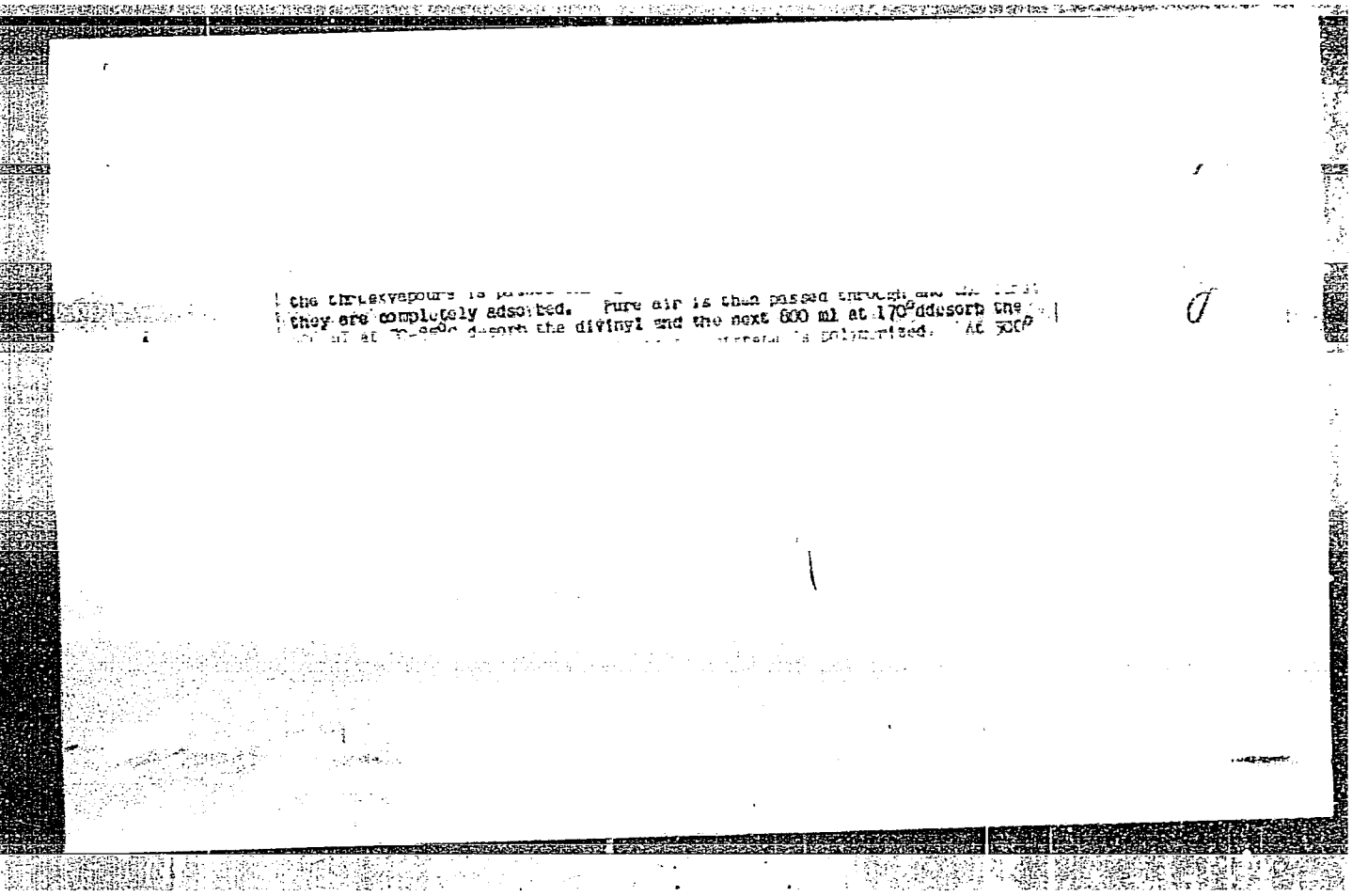

the chromatographic column is passed [illegible]. Pure air is then passed through and the [illegible] they are completely adsorbed. Pure air is then passed through and the [illegible] at 170° desorb the divinyl and the next 600 ml at 170° desorb the [illegible] at 200° desorb the divinyl and the next 600 ml at 170° desorb the [illegible] at 200° desorb the [illegible] is determined. At 200°

TURKEL'TAUB, N.M.

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USSR/Analysis of Organic Substances.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 19684.

Author : A.A. Zhukhovitskiy, N.M. Turkel'taub.
Title : Equipment for Continuous Analysis of Gases.

Orig Pub : Zavod. laboratoriya, 1956, 22, No 10, 1252-1255

Abstract : A horizontal thermodynamic equipment for the continous gas analysis is described; it consists of a circularly bent adsorption tube with silica gel and two vertical outlets, an electric stove and an outlet system (a three-way crane, a drier with NaOH and a speed regulator). The equipment includes two devices, one for measuring the thermal conductivity of gases, the other for measuring the thermal effect of combustion. The stove (temperature 50 to 200°) moves along the adsorption tube (speed about 9 cm/min). The analysed gas is continually fed into the tube at a speed of about 120 ml/min; the gas enters the two described devices from the outlet. A fixed

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TURKEL'TAUB, N.M.

USSR/Physical Chemistry - Surface Phenomena. Adsorption. Chromatography. Ion Exchange B-13

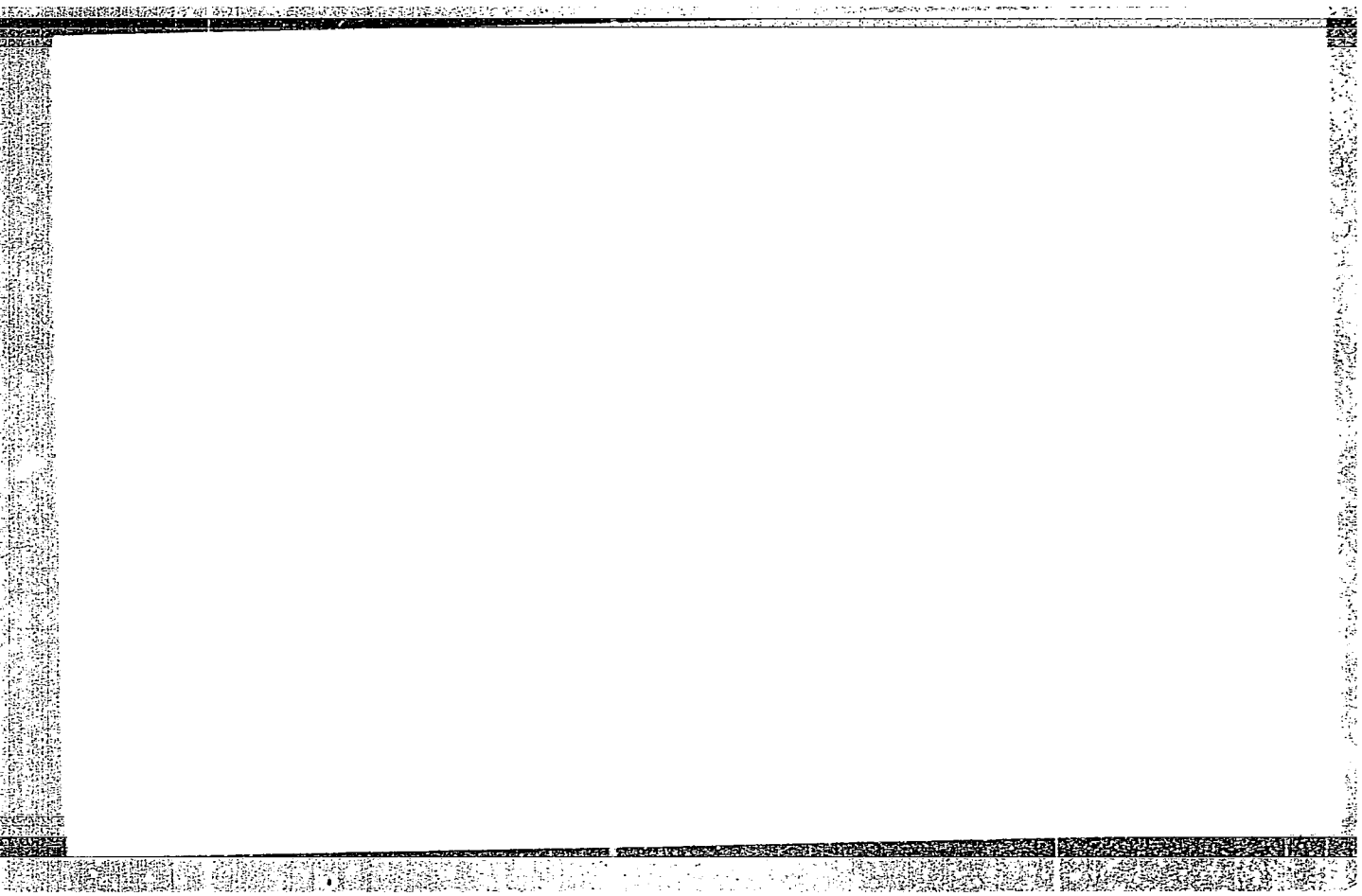
Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4000

Author : Zhukhovitskiy A.A., Turkel'taub N.M.
Title : Chromatographic Method of Separation and Analysis of Gases

Orig Pub : Uspekhi khimii, 1956, 25, No 7, 859-871

Abstract : Presentation of the results of the work by the authors and their associates on the problem stated in the title. Bibliography 41 references.

Card 1/1 - 230 -



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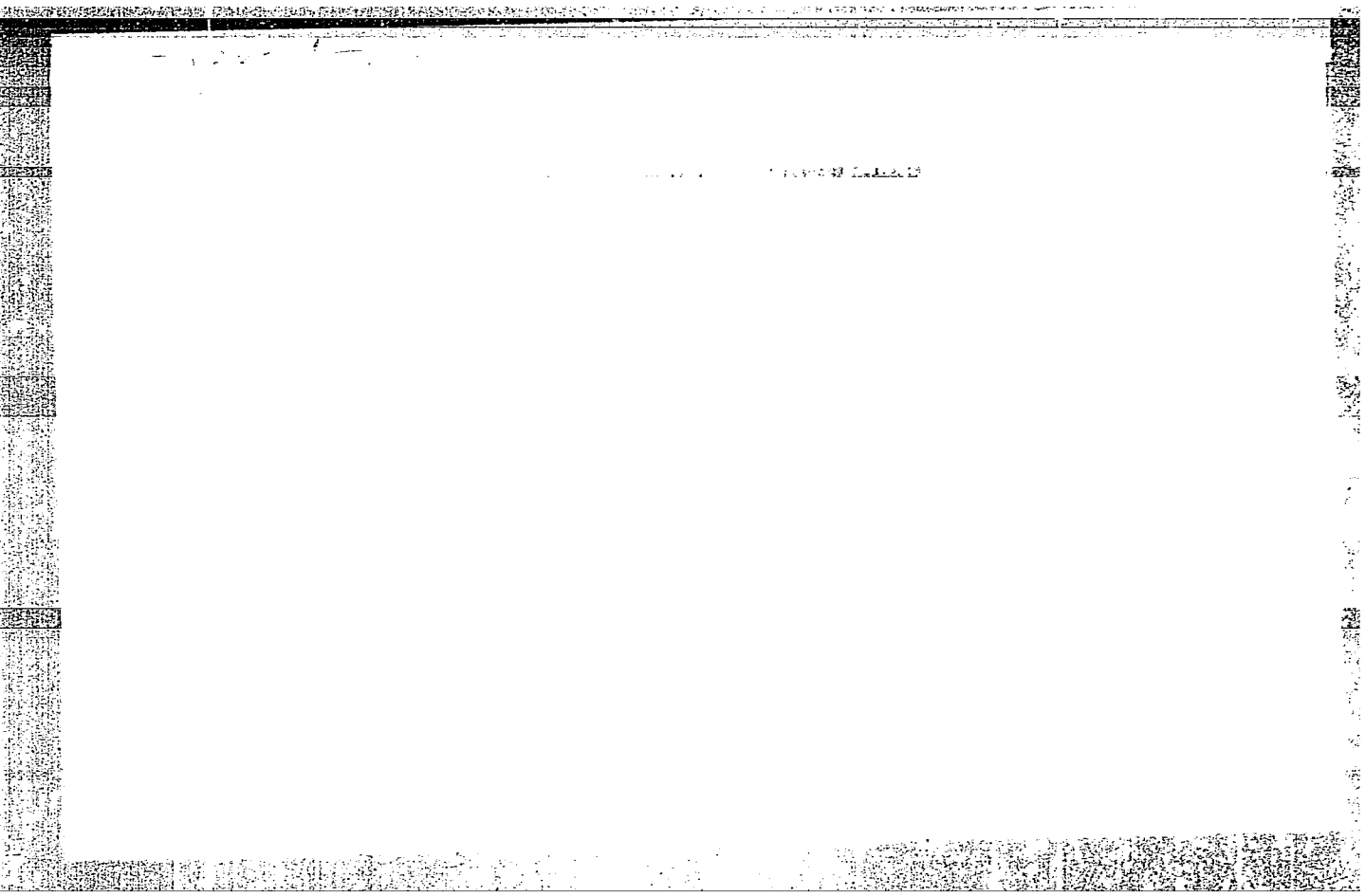

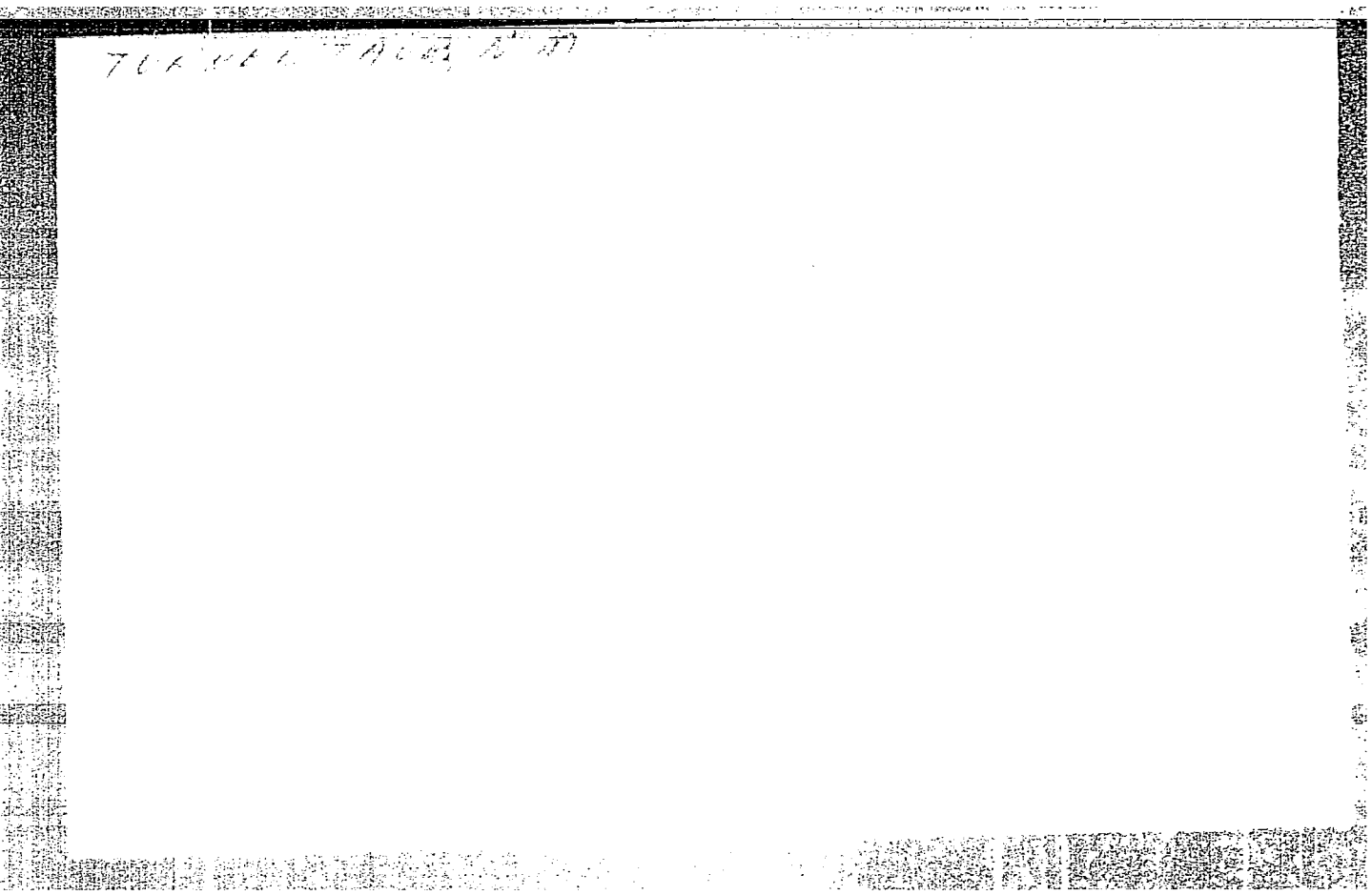

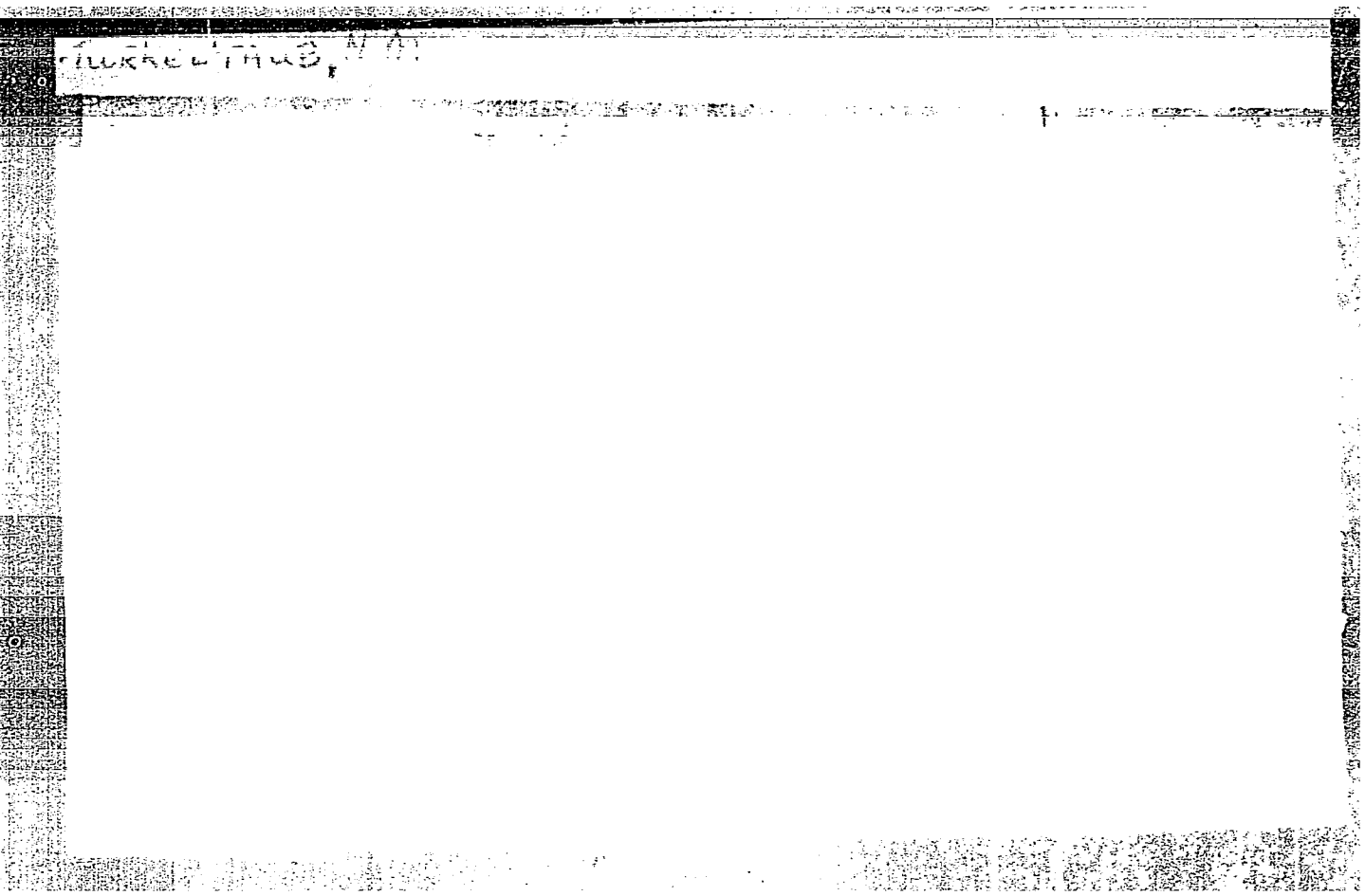

TURKEL'TAUB, N. M.

AUTHORS: Turkel'taub, N. M., Zhukhovitskiy, A. A. 32-9-2/43

TITLE: Theory of Chromatographical Methods in the Gas-Analysis (Teoriya khromatograficheskikh metodov analiza gazov)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp. 1023-1034 (USSR)

ABSTRACT: Here the theoretical analysis of theimportance of different factors in the gas-analysis according to the different variants of the chromatographical method is given. First the development- and the distribution-chromatography is examined. The importance of the different factors and the choice of theoptimum experiment-values in the development- analysis are investigated and the particularities of the distribution-chromatography are shown. The latter gives additional possibilites for the choice of the adsorbent as it permits the application of different solvents and carriers.It is shown that, in addition to the required macroporosity of the carrier, it is practical to use a solvent of low viscosity. By this the demand of an optimum relation between the quantities of carriers and solvents is conditioned. It is referred to the fact that the danger of the wall effect should be considered and therefore sorption columns of a small cross-section should be used.It is shown that in the distribution chromatography low velocities should be used. The number of separation is investigated and it is shown that it is more practical to obtain it on the basis of

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the physical prameters which are connected with the statics and the kinetics of the sorption and the longitudinal diffusion. Next the chromathermography is investigated and it is referred to the fact that here essentially new effects can be obtained. Here the stationary and the non-stationary chromatothermography have to be distinguished. The first one as compared with the development-chromatography has the advantage of offering the possibility of separating a much higher number of components, especially in small concentrations of them. Also the possibility to carry out theprocess of the continuous mixture separation on the basis of the chromatographical method is of importance. In the non-stationary chromathermography it is referred to the existence of an acceleration depending on the adsorbability, which acceleration leads to an improvement of the selectivity.Finally the theory is illustrated by experimental data. There are 5 tables, 6 figures and 23 references, 15 of which are Slavic.

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Card 2/2

TURKEL'TAUB, N.M.

AUTHOR: Turkel'taub, N.M., Zhukhovitskiy, A.A. 32-9-26/43

TITLE: A Chromatographical Universal Device for the Analysis of Complicated Gas Mixtures (Khromatermograficheskiy universal'nyy pribor dlya analiza slozhnykh gazovykh smesey)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp.1120-1124 (USSR)

ABSTRACT: A device for gas analysis, which is based upon the simultaneous application of the three variants of chromatographic analysis: Chromathermography, distribution-, and adsorption development chromatography, is described. Utilization of the thermal factor makes it possible easily to separate substances which differ with respect to adsorption, by means of an adsorbent. The selection of the temperature field in the layer and of the character of its modification with respect to time and length is carried out in dependence on the task to be fulfilled. The chromathermograph is fitted with an additional attachment by means of which it is possible, on the basis of the analysis of development on activated coal to carry out separation of the low-boiling gases at room temperature because they have linear isotherms. Separation of the isomers, which are near the adsorption characteristics and frequently differ considerably with respect to the degree of solubility,

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32-9-26/43

A Chromatographical Universal Device for the Analysis of Complicated Gas Mixtures

is carried out by means of a second attachment which is provided in form of a column with diatomes, which is saturated with a suitable solvent. The device is then described. With its help the following gases can be determined: Hydrogen, carbon monoxide, methane, ethane, ethylene, propane, propylene, isobutane, butane, isobutylene, trans-butylene-2, cis-butylene-2, isopentane, pentane, divinyle, hexane, heptane, octane. Deviations do not exceed 3 - 5%. The sensitivity of the analysis is 0.02%. There are 4 figures, 2 tables, and 8 references, 5 of which are Slavic.

ASSOCIATION: All-Union Scientific Research Institute for Geological Prospecting for Petroleum (Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut)

AVAILABLE: Library of Congress

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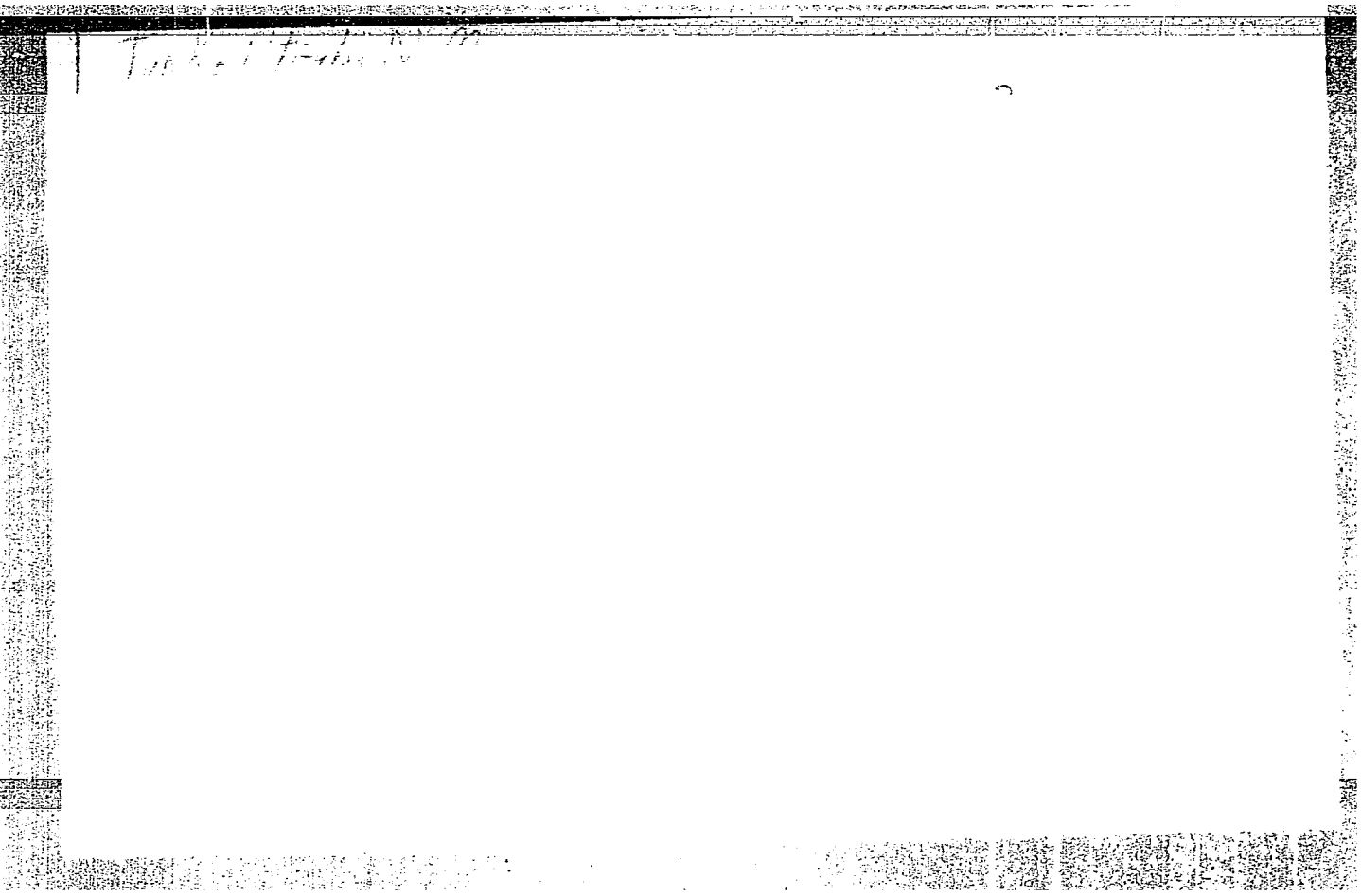

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TURKEL'TAUB, N.M.

TURKEL'TAUB, N.M.

Distributive chromatographic technique for the separation and determination of hydrocarbon gases [with summary in English]. Zhur.fiz.khim. 31 no.9:2102-2109 S '57. (MIRA 11:1)

1.Nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut, Moskva.

(Chromatographic analysis)
(Hydrocarbons)

TURKEL'TAUB, N.M.

AUTHORS: Zhukhovitskiy, A. A., Turkel'taub, N. M. 20-6-26/42

TITLE: Application of the Thermal Factor in Gas Chromatography (O primenenii termicheskogo faktora v gazovoy khromatografii).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 6, pp. 986-989 (USSR)

ABSTRACT: The advantages of chromatography can be most fully utilized by introducing the thermal factor into the development-chromatography. The simultaneous action of the current of a developer, and of a temperature field variable with respect to both time and space, is called chromothermography (reference 6). It is advisable first to investigate the dependence of the selectivity on temperature with the development analysis. In the development analysis the separation depends little on the temperature of the layer. Terms are given for the distance between the components and the width of the bend. With the chromatography of diffusion the diffusion-coefficient D decreases at decreasing temperature. In the case of a curvilinear isotherm the width of the bends increases intensily at decreasing temperature. A temperature field which is independent from the time does not improve the separation. The simple realizability of such a field and the possibility of separating many components within a short period, offers some practical advantages by applying this variant. When applying the thermal factor, the selectivity can only be increased

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when the components show various temperatures throughout the whole test. The medium temperature of development must thus be different for each component. It is advisable to investigate also such variants of chromatography with which the distance between the bends increases in comparison with the developper method. Hereby the worse absorbing component at higher temperatures must be localized then with the better adsorbing ones. The temperature gradient must therefore have the sign reversed to the velocity of flow. The inverse gradient can be determined by means of two methods which are briefly discussed here. The increasing acceleration decreases with growing adsorbability and improves the separation. The thermal effect can not only be applied in form of a continously effecting field, but also in form of a brief heating (impulse-like) with subsequent cooling down. In the case of an impulse-like chromatography of a compound, it is advisable to effect a circulation in which case the component after the impulse returns to the origins of the layer.There are 2 figures, 1 table and 14 references, 8 of which are Slavic.

PRESENTED: May 1o, 1957, by P. A. Rebinder, Academician
SUBMITTED: May 8, 1957
AVAILABLE: Library of Congress

TURKEL'TAUB, N. M. Doc Chem Sci -- (diss) "Chromatographic and chromathermographic methods of analysis of gases and volatile substances." Mos, (State INTI) 1958. 29 pp (Min of Geology and ~~Mineral~~ Conservation (of Mineral Resources) USSR. All-Union Sci Res Geological Prospecting Petroleum Inst VNIGNI), 150 copies. Printed [redacted] by duplicating machine. List of author's works, pp 26-29 (46 titles) (KL, 52-58, 98)

TURKEL'TAUB, N.M., kand.khim.nauk

[Chromatographic and chromathermographic methods for analyzing gases and volatile substances; author's abstract of a doctoral dissertation in chemistry] Khromatograficheskie i khromatermograficheskie metody analiza gazov i letuchikh veshchestv; avtoreferat k dissertatsii na soiskanie uchenoi stepeni doktora khimicheskikh nauk. Moskva, Gos.nauchno-issl.in-t nauchnoi i tekhn.informatsii, 1958. 25 p. (MIRA 12:9)
(Gas, Natural) (Chromatographic analysis)

TURKEL'TAUB, N.M.

IL'INA, N.S., kand.geologo-mineralog.nauk; YELINA, L.M.; HYZHOVA, A.A.; BUZINOVA, V.M.; DMITRIYEVA, L.Ya.; GIMPELEVICH, E.D.; GALAKTIONOVA, N.M.; IL'INSKAYA, V.V.; SOLOV'YEVA, N.S.; KARASEV, M.S.; BAKIROV, A.A., red.; VEBER, V.V., red.; DANOV, A.V., red.; DIKENSHTEYN, G.Kh., red.; MAKSIMOV, S.P., red.; POZNYSH, M.A., red.; SAIDOV, M.N., red.; SEMIKHATOVA, S.V., red.; TURKEL'TAUB, N.M., red.; UL'YANOV, A.V., red. [deceased]; KHALTURIN, D.S., red.; SHABAYEVA, Ye.V., red.; CHIZHOV, A.A., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Coal deposits of the central provinces of the Russian Platform] Kamennougol'nye otlozheniia tsentral'nykh oblastei Russkoi platformy. Pod red. N.S.Il'inoi. Leningrad, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 209 p. (MIRA 12:3)
(Russian Platform--Coal geology)

FLEROVA, O.V., kand. geol.-mineral. nauk, red.; BAKIROV, A.A., red.; VEBER, V.V., red.; DANOV, A.V., red.; DIKENSHTEYN, G.Kh., red.; MAKSIMOV, S.P., red.; POZNYSH, M.A., red.; SAIDOV, M.N., red.; SEMIKHATOVA, S.V., red.; TURKEL'TAUB, N.M., red.; KHALTURIN, D.S., red.; SHABAYEVA, Ye.A., red.; ZARETSKAYA, A.I., vedushchiy red.; FEDOTOVA, I.G., tekhn. red.

[Mesozoic and Tertiary deposits of the central provinces of the Russian Platform] Mezozoiskie i tretichnye otlozheniia tsentral'nykh oblastei Russkoi platformy. Pod red. O.V. Flerovoi. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 291 p. (MIRA 11:10)

1. Moscow. Vsesoiuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut.
(Russian Platform--Geology, Stratigraphic)

Turkel' Taub, B.M.

FILIPPOVA, Mariya Filippovna, kand.geol.-miner.nauk; ARONOVA, S.M.; AFREMOVA, M.F.; GALAKTIONOVA, N.M.; GASSANOVA, I.G.; GIMPELEVICH, E.D.; KARASEV, M.S.; LYASHENKO, A.I.; MAYZEL', Z.L.; RATEYEV, M.A.; SOKOLOVA, L.I.; SOLOV'YEVA, N.S.; KHANIN, A.A.; SHISHENINA, Ye.P.; SHNEYDER, N.P.; BAKIROV, A.A., red.; VEBER, V.V., red.; DANOV, A.V., red.; DIKENSHTEYN, G.Kh., red.; MAKSIMOV, S.P., red.; POZNYSH, M.A., red.; SAIDOV, M.N., red.; SEMIKHATOVA, S.V., red.; TURKEL'TAUB, B.M., red.; UL'YANOV, A.V., red. [deceased]; KHALTURIN, D.S., red.; SHABAYEVA, Ye.A., red.; RAZINA, G.M., vedushchiy red.; GENNAD'YEVA, I.M., tekhn. red.

[Devonian deposits in the central provinces of the Russian Platform] Devonskie otlozheniia tsentral'nykh oblastei Russkoi platformy. Pod red. M.F.Filippovoi. Leningrad, Gos. nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 404 p. (MIRA 11:4)
(Russian Platform--Geology, Stratigraphic)

TURKEL'TAUB, N. M.

V.A.Sokolov, N.M.Turkel'taub and A. A. Zhukhovitskiy "Gasanalytical methods and apparatus for geochemical research."

report presented at a Conference in the Dept. of Geological and Geographical Sci., on Geochemical and Radiometrical Methods of Search and Prospecting for Deposits, 21-26 April 1958.
(Vest. Ak Nauk SSSR, 1958, No. 7, pp. 102-06)

TURKEL'TAUB, N.M.; ANVAYER, B.I.

Adsorption methods of analyzing gases in geochemical research. (MIRA 13:1)
Trudy VNIGNI no.11:219-232 '58.
(Gases--Analysis) (Chromatographic analysis)

TURKEL'TAUB, N.M.; RYABCHUK, L.N.

Chromathermographic determination of nitrous oxide in the presence of ethane and propane. Trudy VNIIGNI no.11:257-259 '58. (MIRA 13:1)

(Nitrogen oxides) (Chromatographic analysis)

TURKEL'TAUB, N.M.; SHCHVARTSMAN, V.P.; KANCHEYEVA, O.A.; LATUKHOVA, A.G.; KOLYUBYAKINA, A.I.

Use of thermodynamic apparatus in gas surveys. Trudy VNIGNI no.11: 260-272 '58. (MIRA 13:1)
(Gases--Analysis) (Geochemical prospecting)

75-1-6/26

AUTHORS: Turkel'taub, N. M., Abramovich, L. Yu.

TITLE: The Use of a Mass Spectrometer for the Determination of the Separation Efficiency of Chromathermographic Apparatus (Primeneniye mass-spektrometra dlya vyyasneniya razdelitel'noy sposobnosti khromatermograficheskikh priborov)

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol. 13, Nr 1, pp. 43-47 (USSR)

ABSTRACT: Chromathermographic apparatus are widely used in industry and scientific research work for gas analysis. In connection with this it is important to be able to investigate, with the aid of an independent method, the purity of the fractions obtained by the separation of gas mixtures in a chromathermographic manner. For this purpose the authors used a mass spectrometer of the type MC-2, as it possesses high sensitivity. The authors investigated fractions obtained by the separation of gas mixtures with the aid of the chromathermographs no. 4, no. 5 and a universal chromathermograph. In the chromathermograph no. 5 air serves as developer. The concentration of the substances behind the layer of the

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The Use of a Mass Spectrometer for the Determination of the Separation Efficiency of Chromathermographic Apparatus

adsorbent are continously determined with the aid of an instrument that measures the conduction of heat. In the chromathermograph no. 4 cabon dioxide serves as developer. The quantities of non-absorbed substances are visually measured in an azotometer filled with a 40 % potash lye. The chromathermographic universal apparatus is based on the simultaneous use of chromathermography and the distribution- and generating chromatography. On that occasion air serves as develper, and a device based on the measurement of the conduction of heat or the heat effect of combustion serves as fixative. Mixtures of saturated and unsaturated hydrocarbons were chromathermographically separated. The time of the elimination of the individual components, i. e. the obtained volumes under standard conditions, were measured. The fractions were then investigated in the mass spectrometer as to their purity. In order to guarantee a uniform work of the mass spectrometer, several mass spectra were taken as calibration spectra for control. The mass-spectrometric analysis of the fractions obtained by the separation of gas mixtures in chromathermographic apparatus showed that in the chromathermograph no. 4 a complete separation of

The Use of a Mass-Spectrometer for the Determination of the Separation Efficiency of Chromathermographic Apparatus

saturated and unsaturated hydrocarbons is possible. In the chromathermograph no. 5 it is moreover possible to separate nitrogen dioxide N_2O from hydrocarbons. In the universal--chromathermographic apparatus finally the separation of the isomers of butane is also possible. The results show that the mass spectrometer of the type MC-2 can be successfully used for the periodic control of the completeness of the separations of complicated gas mixtures in a chromathermographic way. The mass spectrometer is also suitable for the selection of optimum working conditions in chromathermographic devices. The method of working the mass spectrometer and the obtained results of analysis are described in detail. There are 2 figures, 5 tables, and 6 references, 4 of which are Slavic.

ASSOCIATION: Moscow All-Union Scientific Research Institute for Geology and Petroleum Prospecting (Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut, Moskva)

The Use of a Mass Spectrometer for the Determination of the Separation Efficiency of Chromathermographic Apparatus 75-1-6/26

SUBMITTED: May 16, 1957

AVAILABLE: Library of Congress

1. Spectrometers - Applications 2. Gases - Separation - Equipment 3. Chromathermographic apparatus - Test results 4. Chromathermographic apparatus - Applications

Card 4/4

AUTHORS: Zhukhovitskiy, A. A., Turkel'taub, N. M. SOV/32-24-7-4/65

TITLE: The Errors in Chromatographic Analysis Connected With Incomplete Separation (Oshibki khromatograficheskogo analiza, svyazannyye s nepolnotoy razdeleniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 796 - 798 (USSR)

ABSTRACT: The problem is investigated, to what value the errors of determination may rise, if no zeros exist between the maxima of the curve, and which method exhibits the smallest error caused by insufficient separation. If the adsorbability of the component is linearly dependent upon the concentration, Gauss's equation may be used. A formula for the determination of the error by the method of the "heights of the maxima" and by the method of the "areas" is given. In this method the error is determined from the difference between the amount of substance of the first component which falls to the zone of the second component, and that of the second component, which falls to the zone of the first one. In the second case the ordinate of the minimum of the curve of determination is measured, and then a

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The Errors in Chromatographic Analysis Connected With Incomplete Separation

graphical representation of the error function versus the concentration ratio of the components (m) is given. It is found, that in determinations carried out according to the first method the maximum error (6%) occurs at m=1, the error decreasing at an increase of m. With the second method, the error at m=1 equals zero, and in actual cases ($m < 500$) does not exceed 15%. It may be seen from the diagram that at $m < 1,5$ the method of "areas", and at $m > 1,5$ the method of the "heights of maxima" must be applied. In order to achieve a greater precision in the determinations it is recommended to use a correction curve or table.
There are 1 figure, 1 table, and 2 references, which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut (Scientific Research Institute of Geological Prospecting for Petroleum)

5(3)
AUTHORS: Zhukhovitskiy, A. A., Kazanskiy, B. A., Academician, Sterligov, O. D. Turkel'taub, N. M. SOV/20-123-6-22/50

TITLE: Chromatographic Analysis of C_5 Hydrocarbon Mixtures (Khromatograficheskiy analiz smesey uglevodorodov sostava C_5)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1037 - 1040 (USSR)

ABSTRACT: The purpose of the present paper is the elaboration of a quick and sufficiently simple method of the quantitative analysis of isopentane-isoprene-isoamylene mixtures. Such mixtures are formed on dehydrogenation of isopentane into isoamylenes and isoprene. Their analysis was complicated and required much time (Refs 1-4). The authors successfully used a combination of two chromatographic methods: the partition chromatography (Ref 5) and the "chromathermography" (Ref 6). The methods were worked out on pure individual hydrocarbons and on their artificial mixtures. The universal "chromathermograph" was used for the analysis (Ref 7). Aluminum oxide and diatomite impregnated with dibutyl-phthalate

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(25% by weight) served as sorbents. The readings on the apparatus were automatically recorded by the potentiometer EPP-09 . The results of the experiments with the cooperation of A. I. Karymova and P. S. Pavlova) are given in tables 1 and 2. Figure 1a shows the separation of a complex artificial mixture Nr 18 of C_5-hydrocarbons. The chromatogram shows a distinct separation of all hydrocarbons except isopentane and 3-methylbutene-1. This binary mixture was separated with respect to aluminum oxide using "chromathermography" (Fig 2). The results were of satisfactory accuracy. The deciphering of the initial curve is of considerable importance in analyses of this type. Various methods are used for this purpose (Refs 8,9). There are cases of an incomplete separation of the components of the mixture. A method of calculation for the solution of this question (Ref 11) is suggested. Figures 1a and 1b show the application of "chromatography" to the investigation of the dehydrogenation products of isopentane. The mentioned universal apparatus can also be used for the determination of the purity of hydrocarbons.

Chromatographic Analysis of C_5 Hydrocarbon Mixtures SOV/20-123-6-22/50

There are 2 figures, 2 tables, and 11 references, 10 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR) Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut (All-Union Scientific Research Institute for Geological Prospecting of Petroleum)

SUBMITTED: October 20, 1958

Card 3/3

MAKSIMOV, S.P.; YEREMENKO, N.A.; ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; BOTNEVA, T.A.; PANKINA, R.G.

Relation between the changes in the composition of casing-head gas and the increase of stratigraphic depth. Geol.nefti i gaza 3 no.1:55-63 Ja '59. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut.
(Gas, Natural--Analysis)

SOV/63-4-2-11/39

5(0)

AUTHORS: Zhukhovitskiy, A.A., Professor, Turkel'taub, N.M., Candidate of Chemical Sciences

TITLE: Chromatographic Methods and Devices for the Analysis of Gases

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp 207-215 (USSR)

ABSTRACT: Chromatography is a simple and fast method for a continuous analysis of complex gas mixtures which are used as industrial raw materials. It has been developed by M.S. Tsvet in 1903 [Ref 5]. Mixtures with similar boiling points and azeotropic mixtures can be analyzed by this method. In adsorption chromatography a stream of carrier gas moves through a column with adsorbent which separates the components by their different rate of movement. The gas-liquid distribution chromatography uses the solubility of non-volatile liquids on a solid carrier for differentiation. These carriers may be silicagel, kieselguhr, etc. The thermodynamic method combines the frontal analysis with the action of the moving temperature field. The curvilinearity of adsorption isotherms may be eliminated by adding small quantities of water or various solvents to the adsorbent [Ref 20, 21]. The solvent film

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Chromatographic Methods and Devices for the Analysis of Gases

should be thin so that the sorption rate, which determines the rate of inner diffusion, will be high. Hydrogen, carbon dioxide, helium, argon, etc, are used as carrier gases. The composition of the mixture can be determined by measuring the area covered by the output curve or by measuring the height of the peaks. Several foreign chromatographic apparatuses are mentioned. In the USSR the chromatographs KhT-2 and KhT-3 [Ref 37] are produced. The first is used for the automatic analysis of multi-component gas mixtures. The second (Figure 6) combines gas-liquid, distribution and adsorption chromatography with chromathermography. Both devices operate periodically. For continuous operation a chromathermograph has been developed [Ref 36] (Figure 8). The relative error of the described apparatuses is 2-5%.

There are 4 graphs, 4 diagrams, and 37 references, 20 of which are Soviet, 15 English, 1 German and 1 Czechoslovak.

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TURKEL'-TAUB, N. M.

AUTHOR: Bilimovich, G. N. SOV/75-14-4-30/30

TITLE: Section of Analytical Chemistry of the VIII Mendeleyev Congress on General and Applied Chemistry

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 4, pp 511-512 (USSR)

ABSTRACT: Approximately 300 persons participated in the work of the Department of Analytical Chemistry, among them representatives of various scientific research institutes, higher schools and industrial enterprises in Russia, scientists from China, Bulgaria, the ČSR, Poland, Hungary, and Italy. Approximately 70 reports were heard. In his opening speech I. P. Alimarin reported on the achieved results and on modern problems of analytical chemistry. I. V. Tananayev reported on the application of physico-chemical analysis in heterogeneous systems for the solution of a series of problems of analytical chemistry. V. I. Kuznetsov reported on modern aims in the use of organic reagents; A. K. Babko showed at the example of halide and thiocyanate complexes the correlation between the stability of complexes and the position of the corresponding central atoms in the periodic system. V. M. Peshkova and V. M. Bochkova lectured on the stability of oximates of Cu, Co, and Ni as depending on the structure of the oxime molecule. V. P. Toropova lectured on the double character of reaction of some compounds in the formation of complexes. The problem of the application of heteropolyacids in analytical chemistry was dealt with in the lectures of Z. F. Shakhova and co-workers, and A. I. Kokorin and N. A. Polotebnova. A large number of lectures dealt with the use of new organic reagents in analysis: A. I. Busev and M. I. Ivanyutin reported on the application of dialkyl and diaryl dithiophosphoric acid for the separation of elements, A. I. Porinov used aryl arsonic acid and aryl phosphinic acid. N. P. Lastovskiy and his co-workers treated some properties of new complexons. The lectures of V. A. Nazarenko, G. G. Shitareva and A. I. Kononenko dealt with the photometric determination of a series of elements using fluorine derivates. A. I. Cherkesov lectured on the use of halochromation in analytical chemistry. B. M. Dobkina and T. M. Malyutina lectured on the determination of tantalum using differential spectrophotometry. Yu. Ya. Morachevskiy and L. A. Stolyarova reported on new highly sensitive analysis methods using an ultraviolet microscope. Several lectures dealt with methodical and theoretical problems of spectrum analysis (N. P. Zakhariy and G. A. Sheynin; E. Ya. Vaynshteyn and co-workers). N. S. Poluektov and M. N. Nikonova treated the perfection of flame photometry. Several lectures dealt with the determination of elements by polarography (S. I. Sinyakova; I. B. Rozhdestvenskaya and I. A. Yarovoy; Ye. P. Gokhshteyn). New results in using fixed electrodes were reported by I. D. Panchenko and Yu. S. Lyalikov and co-workers. The lecture of E. I. Udal'tsova and P. N. Paley treated the use of amperometric titration with two electrodes in the chemistry of uranium and thorium. N. N. Senyavin showed possibilities of predicting the conditions of chromatographic separation of elements based on their position in the periodic system. T. A. Belyavskaya reported on the use of ion exchange in the investigation of the state of substances in solutions. A. S. Vernidub and V. I. Petrashen' lectured on the chromatographic separation of a series of elements, N. G. Polyanskiy reported on adapting the properties of ion exchanger resins, F. M. Shemyakin and associates reported on the chromatographic proof of sulfanilamide preparations in liquids of the organism. G. L. Starobinets and associates treated the application of high polymers in chromatographic analysis. The lecture of A. A. Zhukhovitskiy and N. M. Turkel'taub, G. Shay dealt with gas chromatography. Several lectures treated the use of radioactive isotopes for the chromatographic investigation of complex formation (D. I. Rybchikov and associates), for the investigation of the co-precipitation mechanism of ions of rare metals with sulfides (M. A. Rudnev) and for determining rare elements by means of isotope dilution (I. P. Alimarin, G. N. Bilimovich). In the field of elementary organic microanalysis the lectures of M. O. Korshun, E. E. Gel'man and V. A. Klimova with associates have to be mentioned, who treated the elaboration of rapid micromethods for the simultaneous determination of several elements from one weighed portion of boron, fluorine and silicium-organic compounds.

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Card 2/4

Card 3/4

5(2) SOV/32-25-2-13/78

AUTHORS: Turkel'taub, N. M., Anvayer, B. I., Kolyubyakina, A. I., Selenkina, M. S.

TITLE: On the Separation of Hydrocarbons C_2 - C_5 by the Method of Gas-liquid Distribution Chromatography (O razdelenii uglevodorodov C_2 - C_5 metodom gazozhidkostnoy raspredelitel'noy khromatografii)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 149-154 (USSR)

ABSTRACT: By a change in the quantity ratio of solvent and sorbent carrier as well as by the use of a mixture of 2 or more solvents the sorbent properties can be changed over a wide range in the above-mentioned method. The investigations of the separation of hydrocarbons by this method (Refs 2-5) have so far been concerned with saturated hydrocarbons or with such above C_4-C_5. In the present case the effect of the nature of the stable phase on the separation of hydrocarbons between C_2 and C_5 are studied. The investigations werecarried out by means of the usual chromatographic apparatus (Ref 6). The data obtained from the apparatus were automatically recorded

Card 1/3

On the Separation of Hydrocarbons C_2 - C_5 by the Method of Gas-liquid Distribution Chromatography

SOV/32-25-2-13/78

by a potentiometer EPP-09. Non-polar solvents (Vaselin, triisobutylene)as well as weakly polar (α-methyl naphthalene, dibutyl phthalate) and highly polar solvents (dimethyl formamide) were used, and it was found that the Henry coefficient of gaseous hydrocarbons can be changed and conditions for a complete separation achieved by changing the nature of the solvent. However not even an optimum ratio of solvent and sorbent carrier will permit a complete separation of the isomers of C_4 and C_5 hydrocarbons. This is only made possible by adding 1 % Vaselin to dimethyl formamide (on a brick sorbent carrier) or 6.5 % triisobutylene (on a diatomite sorbent carrier). By mixing the solvents a continuous change of the polarity of the stable phase can be achieved and thus it is possible to choose the conditions for separating saturated and unsaturated hydrocarbons between C_2 and C_5 and their isomers. There are 3 figures, 1 table, and 15 references, 3 of which are Soviet. .

Card 2/3

On the Separation of Hydrocarbons C_2 - C_5 by the Method of Gas-liquid Distribution Chromatography

SOV/32-25-2-13/78

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut (All-Union Scientific Research Institute of Geological Petroleum Prospecting)

Card 3/3

SOV/32-25-2-40/78

5(3)

AUTHORS: Datskevich, A. A., Zhukhovitskiy, A. A., Turkel'taub, N. M.

TITLE: Apparatus and Technical Equipment for Laboratory Work (Pribory i tekhnika laboratornoy raboty). Sorption-Thermal Apparatus for the Analysis of Gas Mixtures(Sorbtsionno-termicheskiye pribory dlya analiza gazovykh smesey)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 210 - 212 (USSR)

ABSTRACT: The use of stationary chromathermography (CTG) permits the thermal enrichment to take place simultaneously with a breadthwise enrichment, since the adsorption zones tend to gradually be compressed. These localized zones make it possible to carry out automatically both a quantitative and qualitative analysis. A thermodynamical apparatus KhT-2 has been designed which permits analyses by three methods: stationary (CTG) with continuous or intermittent gas supply, and non-stationary (CTG). It is possible to analyze multi-component gas mixtures of saturated and unsaturated hydrocarbons and their isomers through C_6 as well as low-boiling

Card 1/2

gases. The taking of samples and pressure are automatically controlled by a timer and pressure regulator, and the component quantities contained in the mixture are recorded by an electron potentiometer EPP-09. The apparatus (Fig 1) consists of a separating column with a dosing unit, gas analyzer, and a stand for the recording instruments and control panels. Silica gel or aluminum oxide are used as sorbents, the gas carrier is purified air. A diagram of the analysis of an ethane-ethylene-propane-propylene-isobutane-butane mixture is given (Fig 2). The apparatus KhT-3 has been designed to afford more flexibility in the analyses. It is based on combined use of distribution and adsorption chromatography and (CTG). It was designed on the principle of the separation and analysis setup of the universal chromathermograph VNIGNI (Ref)(Fig 3). A model of this setup (without an automatic arrangement) was tested simultaneously with the KhT-2 apparatus in the gas-logging in the Saratov area and at the Moskovskiy neftyanoy pererabatyvayushchiy zavod (Moscow Petroleum Refining Plant). There are 3 figures and 4 Soviet references.

ZHUKHOVITSKIY, A.A., otv.red.; VAGIN, Ye.V., red.; GOL'BERT, K.A., red.; DATSKEVICH, A.A., red.; TURKEL'TAUB, N.M., red.; FESENKO, Ye.P., red.; YANOVSKIY, M.I., red.; VLASOV, L.G., red.izd-va; ASTAF'YEVA, A.G., tekhn.red.

[Gas chromatography; transactions of the First All-Union Conference on Gas Chromatography] Gazovaia khromatografiia; trudy Pervoi Vsesoyuznoi konferentsii po gazovoi khromatografii. Moskva, Izd-vo Akad.nauk SSSR, 1960. 326 p. (MIRA 14:3)

1. Vsesoyuznaya konferentsiya po gazovoy khromatografii. 1st, Moscow, 1959.
(Gas chromatography)

85181
S/065/60/000/011/008/009
E030/E412

5 5600 (1282 only) also 2209

AUTHORS: Zhukhovitskiy, A.A., Selenkina, M.S. and Turkel'taub, N.M.

TITLE: Chromatographic Identification of the Components of Complex Hydrocarbon Mixtures

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.11, pp.57-64

TEXT: A chromatographic method has been determined for separating complicated mixtures of hydrocarbons. It involves measuring the retention volumes and other properties of the peaks of the mixtures, such as area and skewness, when analyzed at one or more temperatures, and when dissolved in one or more solvents. These retention volumes are unique functions of the boiling point of a substance and its ambient temperature for a given column. The chromatographic column is calibrated using known hydrocarbons in known solvents, and straight-line graphs may be drawn of retention volume versus the ratio of boiling temperature to ambient temperature for series of substances in each of the hydrocarbon types, paraffins, cycloparaffins, isoparaffins and aromatics. By choosing highly selective solvents, peaks of hydrocarbons of different types which

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Chromatographic Identification of the Components of Complex Hydrocarbon Mixtures

cannot be resolved on one chromatogram may be resolved with a different solvent. The more complex the mixture, the greater is the number of ambient temperatures and solvents necessary to complete the analysis. The method has been successfully used in analyzing mixtures of twelve hydrocarbons of four types: isopentane, n-pentane, hexane, cyclohexane, isooctane, heptane, benzene, methylcyclohexane, n-octane, nonane, decane and undecane. Three solvents were used in the following sequence at 25% concentration: dinonyl sebacate, tricresylphosphate and silicone E-301; for the last solvent, only two calibration curves were necessary since the aromatic and cycloparaffin, and paraffin and isoparaffin, data coincided. Temperatures used were 83, 118, 97, 107, 122, 150°C. Nitrogen was the carrier. A prerequisite of the method is that the components may be separated by chromatography. It is therefore unsuitable when many isomers are present, as in petroleum samples. For such cases, greater resolution is necessary; this could be obtained by using capillary column chromatography, by more stable

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Chromatographic Identification of the Components of Complex Hydrocarbon Mixtures

temperatures and carrier velocities and by using auxiliary data from mass spectrometry and infrared spectrometry. There are 2 figures, 1 table and 8 references: 7 English and 1 German.

ASSOCIATION: VNIGNI

Card 3/3

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

New variants in gas chromatography for the automatic control of petrochemical processes. Neftekhimiia 2 no.6:818-824 N-D '62. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii.

TITLE: Method of ...
tions

SOURCE: Neftekhimiya, v. 4, no. 4, 1964, 645-649

TOPIC TAGS: gas chromatography, gas analysis, ... analysis ...
... calibration of highly sensitive ... gas ...

control of the ... the accuracy of the method. Mixtures ... detection of highly sensitive gas ...

Card 1/2

L 36479-65

ACCESSION NR: AP5010010

0

[illegible] Nauchno-issledovatel'skiy institut yadernoy geofiziki i [illegible] Nuclear Geophysics and Geo-

SUBMITTED: [illegible]

[illegible] JPRS

NO REF SOV: [illegible]

Card 4/6

L 7006-66 EWT(m)/T/EWA(h) IJP(c)

ACC NR: AP5026805 SOURCE CODE: UR/0286/65/000/017/0088/0088

INVENTOR: Zhukhovitskiy, A. A.; Turkel'taub, N. M.; Fesenko, Ye. P.; Shevchenko, N. P.

ORG: none

23
B

TITLE: An ionization detector. Class 42, No. 174427

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 88

TOPIC TAGS: ionization counter, radiation instrument

10 19

ABSTRACT: This Inventor's Certificate introduces an ionization counter which contains a housing, an ion source, e.g. a hydrogen torch, electrodes and pipes for the gas. The measurement circuit is simplified by making the electrodes from different materials, e.g. zinc and copper, to form a galvanic cell.

SUB CODE: NP/ SUBM DATE: 30Jun64/ ORIG REF: 000/ OTH REF: 000

Card 1/2 UDC: 539.074.2

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L 7006-66
ACC NR: AP5026805

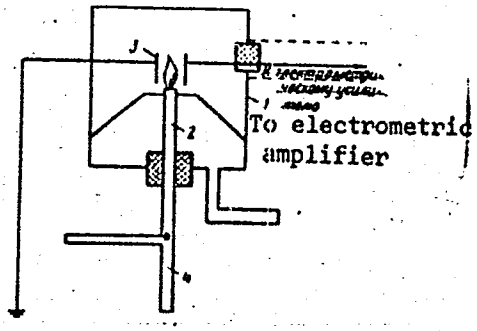

Fig. 1. 1 - housing; 2 - ionization source (hydrogen flame); 3 - electrodes; 4 - gas pipes.

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Card 2/2

VEBER, V.V.; TURKEL'TAUB, N.M. [deceased]

Effect of facies on the formation of gaseous hydrocarbons. Geol. nefti i gaza 9 no.8:41-48 Ag '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut, Moskva, i Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii Ministerstva geologii i okhrany nedr SSSR.

ZHUKHOVITSKIY, A.A.; SELEMENEVA, N.S.; TURKEL'TAUB, N.M.; SHVARTSMAN, V.P.; SHLYAKHOV, A.F.; SMIRNOVA, I.A.

Chromatography without gas carrier and the phenomenon of adsorption substitution. Zav. lab. 30 no.11:1308-1313 '64 (MIRA 18:1)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; SHVARTSMAN, V.P.; SHLYAKHOV, A.F.; Prinimali uchastiye: NOVIKOVA, L.G.; KORNELYUK, L.G.

Diffusion of frontal zones and the calculation of the composition of mixtures in gas carrier-free chromatography. Dokl. AN SSSR 156 no. 3:654-657 '64. (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geokhimii i geofiziki. Predstavleno akademikom P.A.Rebinderom.

TURKENICH, D.I.; MIKHAYLOV, V.A.; POGREBNOY, Yu.N.; POTRUSAYEV, A.P.

Intensity of flame radiation above an oxygen-blown converter as parameter for the automatic stoppage of the smelting process. [Sbor. trud.] TSNIICHM no.29:57-64 '63. (MIRA 17:4)

TURKEL'TAUB, N.M.

Chromatographic methods of analyzing natural gases. Trudy VNIGNI no.27:228-239 '60. (MIRA 17:3)

ACCESSION NR: AP4009730 S/0075/64/019/001/0133/0134

AUTHOR: Turkel'taub, N. M.; Ryabchuk, L. N.; Morozova, S. N.; Zhukhovitskiy, A. A.

TITLE: Chromatographic determination of helium, neon and hydrogen admixtures in air

SOURCE: Zhurnal analiticheskoy khimii, v. 19, no. 1, 1964, 133-134

TOPIC TAGS: helium determination, neon determination, hydrogen gas determination, gaseous air admixture, air analysis, air impurity concentration, charcoal gas absorption, elution chromatography, air admixture chromatography

ABSTRACT: Prior concentration and subsequent analysis of these contents by elution chromatography on activated charcoal at room temperature rather than low temperatures, afforded simultaneous determination of these admixtures with satisfactory precision at the following concentrations: He-0.0001%, Ne-0.0004%, H_2-0.0001%. The concentration method was based on frontal analysis (to obtain

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ACCESSION NR: AP4009730

the less absorbable components) with a 2-step technique in a U-shaped charcoal filled tube. The usual chromatographic set-up for this medium was used for analysis with argon as carrier gas. The concentration coefficients were 12 for He, 15 for Ne and 10 for H_2. After 12 tests of air from the street the following standard deviation errors were obtained: 4.6% for He, 4.1% for Ne and 7.8% for H_2. The sensitivity limits of the equipment were 0.001% for He, 0.0035% for Ne and 0.001% for H_2 for a 3.5 cc sample. Orig. art. has: 4 figures

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel-skiy institut yadernoy geofiziki i geokhimii, Moskva (All-Union Scientific Research Institute of Nuclear Geophysics and Geochemistry)

SUBMITTED: 01Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: CH NO REF SOV: 001 OTHER: 004

ACCESSION NR: AP4009730 S/0075/64/019/001/0133/0134

AUTHOR: Turkel'taub, N. M.; Ryabchuk, L. N.; Morozova, S. N.; Zhukhovitskiy, A. A.

TITLE: Chromatographic determination of helium, neon and hydrogen admixtures in air

SOURCE: Zhurnal analiticheskoy khimii, v. 19, no. 1, 1964, 133-134

TOPIC TAGS: helium determination, neon determination, hydrogen gas determination, gaseous air admixture, air analysis, air impurity concentration, charcoal gas absorption, elution chromatography, air admixture chromatography

ABSTRACT: Prior concentration and subsequent analysis of these contents by elution chromatography on activated charcoal at room temperature rather than low temperatures, afforded simultaneous determination of these admixtures with satisfactory precision at the following concentrations: He-0.0001%, Ne-0.0004%, H_2-0.0001%. The concentration method was based on frontal analysis (to obtain

Card 1/2

ACCESSION NR: AP4009730

the less absorbable components) with a 2-step technique in a U-shaped charcoal filled tube. The usual chromatographic set-up for this medium was used for analysis with argon as carrier gas. The concentration coefficients were 12 for He, 15 for Ne and 10 for H_2. After 12 tests of air from the street the following standard deviation errors were obtained: 4.6% for He, 4.1% for Ne and 7.8% for H_2. The sensitivity limits of the equipment were 0.001% for He, 0.0035% for Ne and 0.001% for H_2 for a 3.5 cc sample. Orig. art. has: 4 figures

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel-skiy institut yadernoy geofiziki i geokhimii, Moskva (All-Union Scientific Research Institute of Nuclear Geophysics and Geochemistry)

SUBMITTED: 01Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: CH NO REF SOV: 001 OTHER: 004

Card 2/2

MIRZAYANOV, V.S.; ZHUKHOVITSKIY, A.A.; BEREZKIN, V.G.; TURKEL'TAUB, N.M.

Frontal-displacement method for concentrating poorly adsorbed impurities. Zav. lab. 29 no.10:1166-1169 '63. (MIRA 16:12)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; MALYASOVA, L.A.; SHLYAKHOV, A.F.; NAUMOVA, V.V.; POGREBNAYA, T.I.

Chromatography without gas carriers. Zav. lab. 29 no.10:1162-1166 '63. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii.

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Iteration chromatography. Dokl. AN SSSR 150 no.1:113-115 My '63.
(MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii. Predstavleno akademikom P.A.Rebinderom.
(Gas chromatography)

TURKEL'TAUB, N.M.

Application of various modifications in the methods of gas chromatography for the analysis of hydrocarbon mixtures. Trudy Kom.anal.khim. 13: 225-231 '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut.
(Hydrocarbons) (Gas chromatography)

TURKEL'TAUB, N.M.; SHEMYATENKOVA, V.T.; AYNSHTEYN, S.A.; SYAVTSILLO, S.V.

Determination of some organic impurities in raw materials and intermediate products of the synthesis of organosilicon compounds. Trudy Kom.anal.khim. 13:284-289 '63. (MIRA 16:5)
(Silicon organic compounds)

ZHUKHOVITSKIY, A.A.; SELENKINA, M.S.; SERENKOVA, A.G.; TURKEL'TAUB, N.M.

Methods of chromatographic identification of the components of complex mixtures. Trudy Kom.anal.khim. 13:216-224 '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut.
(Chromatographic analysis) (Petroleum--Analysis)

PALAMARCHUK, N.A.; SYAVTSILLO, S.V.; TURKEL'TAUB, N.M.; SHEMYATENKOVA, V.T.

Chromatographic determination of chlorosilanes. Trudy Kom.anal.khim. 13:277-283 '63. (MIRA 16:5)
(Silane) (Chromatographic analysis)

L 12974-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW
ACCESSION NR: AT3002347 S/2513/63/013/000/0277/0283

66

AUTHOR: Palamarchuk, N. A.; Syavtsillo, S. V.; Turkel'taub, N. M.; Shemyatenkova, V. T.

TITLE: Chromatographic determination of chlorosilanes

SOURCE: AN SSSR. Komissiya po analiticheskoy khimii. Trudy"; v. 13, 1963. Organicheskiy analiz, 277-283

TOPIC TAGS: chromatography, chlorosilane, helium, celite, dimethyldichlorosilane, benzylbenzoate

ABSTRACT: This investigation is a continuation of a previous work which was done on the separation of chlorosilanes by gas-liquid chromatography. The present investigation was performed under isothermal conditions using helium as the carrier gas and a detector with two platinum elements embedded in glass. Each element had a 30 ohm resistance with a sensitivity of 600 mv. ml/mg. The identification of chlorosilanes was made according to their specific gravity and the relative retentive volume. The content of various components was determined by peak areas or peak heights by means of normalization. The solid support celite or diatomaceous brick was treated with dimethyldichlorosilane vapors in a dry,

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ACCESSION NR: AP3002347

inert atmosphere after which its adsorption capability sharply decreased. In order to select the most effective stationary phase, several new materials were added to the ones previously investigated. These included benzylbenzoate, dimethylphthalate, dibutylphthalate, dinonylphthalate, tricresylphosphate, and diethylphthalate. On the basis of the obtained data stationary phases were selected which permit a complete separation of the components in a shortest amount of time. The stationary phases which are suggested to be used in an amount of 10% on celite or modified brick are benzylbenzoate, dibutylphthalate and diethylphthalate. With a column of 2.7-3.5 m long and 4 mm in diameter at a temperature of 30C and 40 ml/min gas flow, a complete separation of the following components takes place: (CH sub 3) sub 2 SiCl sub 2, CH sub 3 SiCl sub 3 SiCl, CH sub 3 HSiCl sub 2, (CH sub 3) sub 2 HSiCl, SiCl sub 4, HSiCl sub 3, H sub 2 SiCl sub 2, and CH sub 3 Cl. The time of analysis is 20 minutes with an accuracy of 2-3% relative error. Orig. art. has: 2 tables and 2 graphs.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 13Jun63 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 003

Card 2/2

L 12706-63 EWT(m)/BDS AB

ACCESSION NR: AP3000304 S/0020/63/150/001/0113/0115

51
50

AUTHOR: Zhukhovitskiy, A. A.; Turkel'taub, N. M.

TITLE: Iterative chromatography

SOURCE: AN SSSR. Doklady, v. 150, no. 1, 1963, 113-115

TOPIC TAGS: chromatography, flame ionization, hydrocarbons, automatic control, laboratory analysis

ABSTRACT: Authors made use of iterative chromatography in two variations to analyze a substance (experimental works were carried out jointly with L. A. Malyasova). In the first of these, doses of a gas of known composition are introduced successively into the stream of the analyzed mixture. Authors then describe the steps used to carry out a complete analysis. The first variation was used for two cases: 1. a separation of a mixture of isobutane-butane. The detector was flame-ionization. Gas-carrier was nitrogen; 2. separation of hydrocarbons. Detector was flame-ionization. The gas carrier was nitrogen. In the second variation, the dosed mixture was prepared by a mixture of the component's streams. The second variation is simpler and more rational to use. Authors conclude that iterative method can be used not only for laboratory analysis but also for analysis carried out on the production line for automatic control. Orig. art. has 3 fig.

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Association: Moscow Chemical and Technological Inst.

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; KANCHEYEVA, O.A.; NAUMOV, V.V.; RYABCHUK, L.N.

Partition step chromatography. Zav.lab. 29 no.1:14-18 '63. (MIRA 16:2)

1. Institut yadernoy geofiziki i geokhimii.
(Chromatographic analysis)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; GAYYER, M.; LAGASHKINA, M.N.; MALYASOVA, L.A.; SHLEPUZHNIKOVA, G.P.

Vacancy chromatography. Zav.lab. 29 no.1:8-13 '63. (MIRA 16:2)

1. Institut yedernoy geofiziki i geokhimii.
(Chromatographic analysis)

S/204/63/003/001/012/013
E075/E436

AUTHORS: Zhukhovitskiy, A.A., Turkel'taub, N.M.

TITLE: The chromatographic determination of impurities

PERIODICAL: Neftekhimiya, v.3, no.1, 1963, 135-143

TEXT: The possibility of determining impurities in gas mixtures by ionization detectors and new gas-chromatographic methods was investigated. The dependence of the required number of theoretical plates on the ratio (B) of concentrations of adjacent components was analyzed and the following relationships derived:

$$\frac{N_B}{N_1} = \frac{n^2}{4} \quad ; \quad \text{and for} \quad B \gg 1 \quad \frac{N_B}{N_1} = \frac{\ln B}{2}$$

where N - number of theoretical plates and $n = \sqrt{2 \ln B}$ for $B \gg 1$. Thus for B = 1000, the number of theoretical plates in comparison with B = 1 should be increased 2.84 times. In general, it is desirable for the main component to be adsorbed more strongly (even irreversibly) than the impurity. This would prevent the latter from being obscured by the tailing of the main component.

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The chromatographic ...

The most promising methods are those developed recently by A.A.Zhukhovitskiy et al and are: 1) thermodynamic method (Dokl. AN SSSR, v.92, 1953, 987), where the mixture is fed continuously into the column subjected to periodic temperature gradient moving in the same direction as the velocity of the furnace; 2) gradient chromatography (Dokl. AN SSSR, v.144, 1962, 829), its advantage being that the diffusional dilution does not lower the concentration of impurities; 3) vacancy chromatography (Dokl. AN SSSR, v.143, 1962, 646), the introduction of the main component into the mixture passed through the column removing its peak (vacancy) in the chromatogram and thus facilitating the determination of the impurity. The methods reveal new possibilities in the analysis of crude oils, natural gas, upper layers of atmosphere and impurities in industrial gaseous mixture. There are 5 figures and 2 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii (All-Union Scientific Research Institute of Nuclear Geophysics and Geochemistry)

SUBMITTED: May 18, 1962

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ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Chromatographic determination of impurities. Neftekhimiia 3 no.1:135-143 Ja-F '63. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii. (Chromatographic analysis)

S/204/62/002/006/001/012
E075/E192

AUTHORS: Zhukhovitskiy, A.A., and Turkel'taub, N.M.

TITLE: New variants of gas chromatography for the automatic control of petrochemical processes

PERIODICAL: Neftekhimiya, v.2, no.6, 1962, 818-824

TEXT: Step-elution and vacancy gas-chromatographic procedures were examined to find a suitable method for the automatic control of petrochemical processes. The advantages of the step-elution variant are that the components of the mixture do not have to be separated completely; relatively long time retention of steps facilitates the transmission of signal and its interpretation. The condition for the preservation of a component-step was given by the authors previously (Dokl. AN SSSR, v.144, 1962, 829), viz:

$$v_o > 3.2\Gamma\sqrt{HL} \quad (1)$$

while the condition for the separation of two steps is given by:

$$v_o < L\Delta\Gamma - 0.74\Gamma\sqrt{HL} \quad (2)$$

where: H - height of theoretical plate; L - column length;

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Γ - Henry coefficient; v_o - sample volume. The conditions were confirmed experimentally by the separations of butane and isobutane on Inza brick coated with 2% hexadecane. The advantages of the step-elution method for the purpose of automatic control were illustrated by determining satisfactorily ethylene impurities (0.3%) in town gas. A sufficiently wide ethylene step was obtained to give a satisfactory signal. Return to the base line between the ethylene and propane steps permits its control. The main disadvantage of the step elution chromatography lies in the discontinuous nature of the analytical process necessitating a complex sample injector and the application of a carrier gas. In vacancy chromatography a sample of a mixture is injected into the mixture stream, one of the components of the mixture having been previously removed. The advantages of this method are as follows: 1) the mixture is passed continuously through the column; 2) sample injection is simplified; 3) carrier gas does not have to be used; 4) the total concentration of the mixture's components is measured continuously; 5) the determined concentration is not instantaneous but averaged over a certain time.

New variants of gas ... 3/204/62/002/006/001/012
E075/E192

A further development of vacancy chromatography should aim at the elimination of the sample injection and thus make the process fully continuous.
There are 4 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii
(All-Union Scientific Research Institute of Nuclear Geophysics and Geochemistry)

SUBMITTED: May 18, 1962

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S/032/63/029/001/001/022
B101/B186

AUTHORS: Zhukhovitskiy, A. A., Turkel'taub, N. M., Gayer, M., Lagashkina, M. N., Malyasova, L. A., and Shlepuzhnikova, G.P.

TITLE: Vacantochromatography

PERIODICAL: Zavodskaya laboratoriya, v, 29, no. 1, 1963, 8 - 13

TEXT: A variant of chromatography is suggested in which the mixture to be separated flows continuously through the column and the carrier gas is added in portions. The rules governing the motion of bands in conventional chromatography apply also to the resulting "vacancies" (places containing no substance to be absorbed). Examples of vacantochromatograms are given for hydrocarbon mixtures where the "vacancies" were produced by addition of 0.6 cm^3 air. The asymmetry of peaks is less when using the suggested method than in the usual adsorption chromatography. The area of the "vacancy" peak is proportional to the volume of the carrier gas added. The sensitivity can be increased by moving a temperature field against the flow. Another variant is the addition of carrier gas with a verifying agent, e.g. butane. The impurity concentration can be calcu-

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S/032/63/029/001/001/022
B101/B186

Vacantochromatography

lated from the ratio between the peaks of the gaseous impurities in He and the peak of the butane vacancy. Vacantochromatography is particularly recommended for the analysis of low-boiling impurities. The direct use of a flame ionization detector is possible when analyzing noncombustible substances. There are 7 figures and 2 tables.

ASSOCIATION: Institut yadernoy geofiziki i geokhimii (Institute of Nuclear Geophysics and Geochemistry)

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S/032/63/029/001/002/022
B101/B186

AUTHORS: Zhukhovitskiy, A. A., Turkel'taub, N. M., Kancheyeva, O. A., Naumova, V. V., and Ryabchuk, L. N.

TITLE: Stepwise chromatography

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 1, 1963, 14 - 18

TEXT: A simplified form of chromatography is suggested for industrial analyses. Horizontal steps are obtained instead of peaks by introducing in the column large amounts of the mixture to be separated. Complete separation of the substances is not necessary as the height of the steps is such that the components and their concentrations can be determined with the same accuracy as on the basis of the peaks in complete separation. The conditions for the formation of steps are derived from the equation for the separation coefficient and from the dependence of the concentration on diffusion, the Henry coefficient, and the Kramp function. A column twice as long as that used in detection chromatography is needed, and the Henry coefficient must be much greater than unity. Complete separation of the steps is not necessary, however, for mixtures

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Stepwise chromatography

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B101/B186

having only 2-3 components. Examples are given for the separation of hydrocarbon mixtures on brick powder impregnated with vaseline oil or hexadecane, or on Al_2O_3. Columns of 300-340 cm length or a capillary of 93 m length wetted with hexadecane were used. There are 5 figures.

ASSOCIATION: Institut yadernoy geofiziki i geokhimii (Institute of Nuclear Geophysics and Geochemistry)

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ZHUKHOVITSKIY, Aleksandr Abramovich; TURKEL'TAUB, Nusin Motelevich; YENISHERLOVA, O.M., ved. red.; VORONOVA, V.V., tekhn. red.

[Gas chromatography]Gazovaia khromatografiia. Moskva, Gostoptekhizdat, 1962. 440 p. (MIRA 16:1)
(Gas chromatography)

TURKEL'TAUB, N.M.; IVANOVA, N.T.

Chromatographic analysis of C_3 monochloro derivatives. Plast.-massy no.8:55-59 '62. (MIRA 15:7)
(Chlorine compounds) (Chromatographic analysis)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; SHLYAKHOV, A.F.

Analysis of some low boiling gases with the use of molecular sieves and complexing agents. Khim.i tekh.topl.i masel 7 no.6:7-11 Je '62. (MIRA 15:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut yadernoy geofiziki i geokhimii Ministerstva geologii i okhrany nedr SSSR. (Gases--Analysis)

ZHUKHOVITSKIY, A.A.; SELENKINA, M.S.; TURKEL'TAUB, N.M.

Problem of the consecutive connection of columns in gas chromatography. Zhur.fiz.khim. 36 no.5:993-998 My '62. (MIRA 15:8)

1. Moskovskiy institut stali. (Gas chromatography)

ALEKSEYEVA, K.V.; ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Study of the effect of various parameters in preparative chromatography. Khim.i tekh.topl.i masel 7 no.4:60-66 Ap '62. (MIRA 15:4)

1. Gosudarstvennyy institut po proyektirovaniyu zavodov kauchukovoy promyshlennosti.

(Gas chromatography)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Stepped chromatography. Dokl.AN SSSR 144 no.4:829-832 Je '62.
(MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy institut. Predstavleno akademikom P.A.Rebinderom.
(Gas chromatography)

DOBYCHIN, D.P.; PORSHNEVA, N.V.; TURKEL'TAUB, N.M.

Use of porous glass as sorbent in gas chromatography. Zhur.-prikl.khim. 35 no.6:1246-1253 Je '62. (MIRA 15:7)
(Gas chromatography) (Glass)

S/081/62/000/018/038/059
B166/B180

AUTHORS: Turkel'taub, N. M., Vasil'yeva, L. N.

TITLE: Analysis of mixtures of C_1 - C_5 paraffinic and olefinic hydrocarbons by means of gas chromatography on modified sorbents

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1962, 453-454, abstract 18M209 (Novosti neft. i gaz. tekhn. Gaz. delo, no. 2, 1961, 27-32)

TEXT: A technique has been developed for modifying sorbents for separating mixtures of C_1 - C_4 paraffins and olefins, pentane, isopentane and certain amylenes. It is found that alkali modification of diatomaceous brick will level out the adsorption isotherms, reduce the capacity of the sorbent and eliminate the irreversibility of isobutylene adsorption. A 2% addition of vaseline oil, a nonpolar solvent, to the alkali-modified brick, considerably reduces the containment volumes of the butylenes, varying the elution of the

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S/081/62/000/018/038/059
B166/B180

Analysis of mixtures of ...

components of the mixture under investigation. For complete separation of a mixture of C_1 - C_4 hydrocarbons, pentane and isopentane the optimum quantities for adding to the brick are 2% alkali and 10% vaseline oil, or 5% alkali and 7% vaseline oil. This technique can be used both for chromatographic analysis under isothermal conditions and for industrial gases using a XT-2M (KhT-2M) instrument. [Abstracter's note: Complete translation.]

Card 2/2

TURKEL'TAUB, N.M.; AYNSHTEYN, S.A.; SYAVTSILLO, S.V.

Chromatographic method of determining impurities in readily hydrolyzable and reactive substances. Zav.lab. 28 no.2:141-144 '62. (MIRA 15:3)
(Chromatographic analysis)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Increasing the effectiveness of gas chromatography. Zav.lab. 28 no.2:133-136 '62. (MIRA 15:3)
(Gas chromatography)

ZHIKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.; Prinimali uchastiye: GAYYER, M.; LAGASHKINA, M.N.

"Vacancy-chromatography." Dokl. AN SSSR 143 no.3:646-648 Mr '62. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut. Predstavleno akademikom P.A.Rebinderom.
(Chromatographic analysis)

ZHUKHOVITSKIY, A.A.; TURKEL'TAUB, N.M.

Efficiency criteria in gas chromatography. Usp.khim. 30 no.7: 877-894 Jl '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut.
(Gas chromatography)

KOROL', A.N.; TURKEL'TAUB, N.M.

Selection of a solvent for gas chromatography. Khim.i tekh.topl. i masel 6 no.6:61-66 Je '61. (MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut.
(Gas chromatography)

LUSKINA, B.M.; SYAVTSILLO, S.V.; TERENT'YEV, A.P.; TURKEL'TAUB, N.M.

Microdetermination of carbon and hydrogen in organic compounds by gas chromatography. Dokl. AN SSSR 141 no.4:869-871 D '61. (MIRA 14:11)

1. Chlen-korrespondent AN SSSR (for Terent'yev).
(Carbon--Analysis) (Hydrogen--Analysis)
(Gas chromatography)

TURKEL'TAUB, N.M.; ZHUKHOVITSKIY, A.A.; FORSHNEVA, N.V.

Investigation of molecular sieves by gas chromatography. Zhur. prikl.khim. 34 no.9:1946-1953 S '61. (MIRA 14:9)
(Adsorption)

ANTONOV, P.L.; BOTNEVA, T.A.; YEREMENKO, N.A.; ZHABREV, D.V.; SUBBOTA, M.I.; TURKEL'TAUB, N.M.; YASENEV, B.P.

Present status of oil and gas geochemical prospecting methods. Trudy VNIGNI no. 10:227-240 '58. (MIRA 14:5)
(Geochemical prospecting)

TURKEL'TAUB, N.M.; ZHUKHOVITSKIY, A.A.

Chromatographic methods and apparatus for analyzing complex mixtures of gases and volatile substances. Trudy VNIGNI no. 10:257-265 '58. (MIRA 14:5)
(Chromatographic analysis) (Gases)